

Rising Sea Levels & Erosion

- Over the last 100 years, the global sea level has risen about 10 - 25 cm
- The first 40 years of the 100 have been from both natural causes and human activity, but in the last 60 years, humans have been mainly responsible for this increase
- In most people's opinion, the burning of fossil fuels has lead to the rising sea levels
- The burning of fossil fuels produces around 21.3 billion tonnes of CO₂ each year
- Factories and Cars are both contributors to the burning of fossil fuels
- Take cars for example - when cars were first invented, they emitted little CO₂ and were only owned by the wealthy. Overtime, cars became more economical and began to burn more fossil fuels due to engineering advances
- Nowadays, most cars burn plenty of fossil fuels, and are much more common than they used to be, which has lead to an increase in CO₂ emissions
- The increase in CO₂ emissions effects the temperature in many ways
- One of the main reasons is CO₂ is in a sense, getting rid of the ozone layer. To survive, we need the ozone layer because it traps heat, and prevents too much from leaving and coming in!

- The greenhouse effect is when gases such as CO₂ trap the sun's heat
- This causes the earth to warm up, and the temperature to rise
- The greenhouse effect has drastically changed the average monthly temperature
- Since 1880, the earth has warmed an average of 0.85 °C
- When the temperature increases, it causes the polar icecaps in the polar areas to melt
- When this occurs, sea levels begin to rise
- As previously stated, over the last 100 years, the global sea level has risen about 10 - 25 cm. We now know this is due to the polar icecaps melting, and therefore, the increase in temperature caused by climate change
- Yes, ice caps have melted naturally in the past, and continue to. However, they also build back up during the cold seasons
- The icecaps are now melting faster than they can build back up, which is attributed to the increase in temperature
- The melting icecaps are going to cost \$70 trillion worldwide

- This is due to costs of adaptation, water contamination, population displacement and the submerging of certain islands such as the Maldives, which would only take a one meter sea level rise to become submerged
- If global warming got to such a point where it would melt thirty to forty percent of the icecaps in the polar regions, it would cause such a significant rise in water that it would flood most major cities on the waterline
- Most cities would be decimated, and the cost of repair would be trillions of dollars. This would lead to desperation and a whole host of other issues
- Erosion is when water and wind remove soil and rock from the ground, then transport it to another location
- When erosion occurs, it can “dissolve” the land, by displacing soil, killing organisms, causing deforestation, and changing land formations
- Erosion is a natural process, but human activity has increased erosion by 10 - 40 times globally
- Rising sea levels lead to an increase in both water and wind: both of which cause erosion
- For example, beaches are constantly being eroded, and as sea levels rise, more water will be pushed onto and pulled off the beach, decreasing the shoreline
- Erosion removes topsoil, which affects soil fertility

- This can lead to deforestation, which could have major economic impacts on global crops
- It moves around water and debris which can cause contamination of other water bodies
- If man-made erosion continues at its current rate, islands like Hawaii will have their shores eroded, significantly reducing their land
- In the 1970s, several chunks of Santa Barbara fell into the sea due to coastal erosion
- Wind and water from such events as Hurricane Katrina have caused major erosion to New Orleans
- Soil erosion is particularly problematic in developing countries in Africa, Asia and Latin America
- Reducing global warming would obviously be the best way to deal with rising sea levels and erosion. Without it, the ice caps would not be melting at an accelerated rate, and the seas would therefore not be rising. Without the rising seas, shore erosion would not be as problematic, and wind erosion would be significantly reduced
- Simple global warming reduction techniques such as using cars less, biking/walking more, recycling more, and trying to use more green energy are the most effective ways to deal with these issues